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Yosemite V3 SW Management Introduction



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Yosemite V3 SW Management Introduction

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YV3 Multi Configs Management



HW MANAGEMENT

- Multi configs : Enables several expansion options
- Manageability : BMC and BIC via IPMI, BMC and CPLD via i2c
- Identification : BMC can identify the type through Board_Type

Config name	Config A	Config B	Config C	Config D
1U/2U server config	10U	10U	20U	20U
Expansion cards installed per server	None	Front Expansion Board with up to 4xM.2	1. Front Expansion Board with Dedicated NIC of 100G SH 2. 2U Expansion Board with 6xDual M.2 + PCIe Switch	1. Front Expansion Board with up to 4xM.2 2. 2U Expansion Board with 6 x M.2 option with no PCIe Switch
OCP NIC 3.0 NIC	1x 50G, MH	1x 50G, MH	2x 100G, SH	1x 50G, MH



BMC



HW MANAGEMENT

- Code architecture: BSP, Kernel, common app and project code.
- The following table shows the common and difference in the source code in different projects. (% is the commonality)

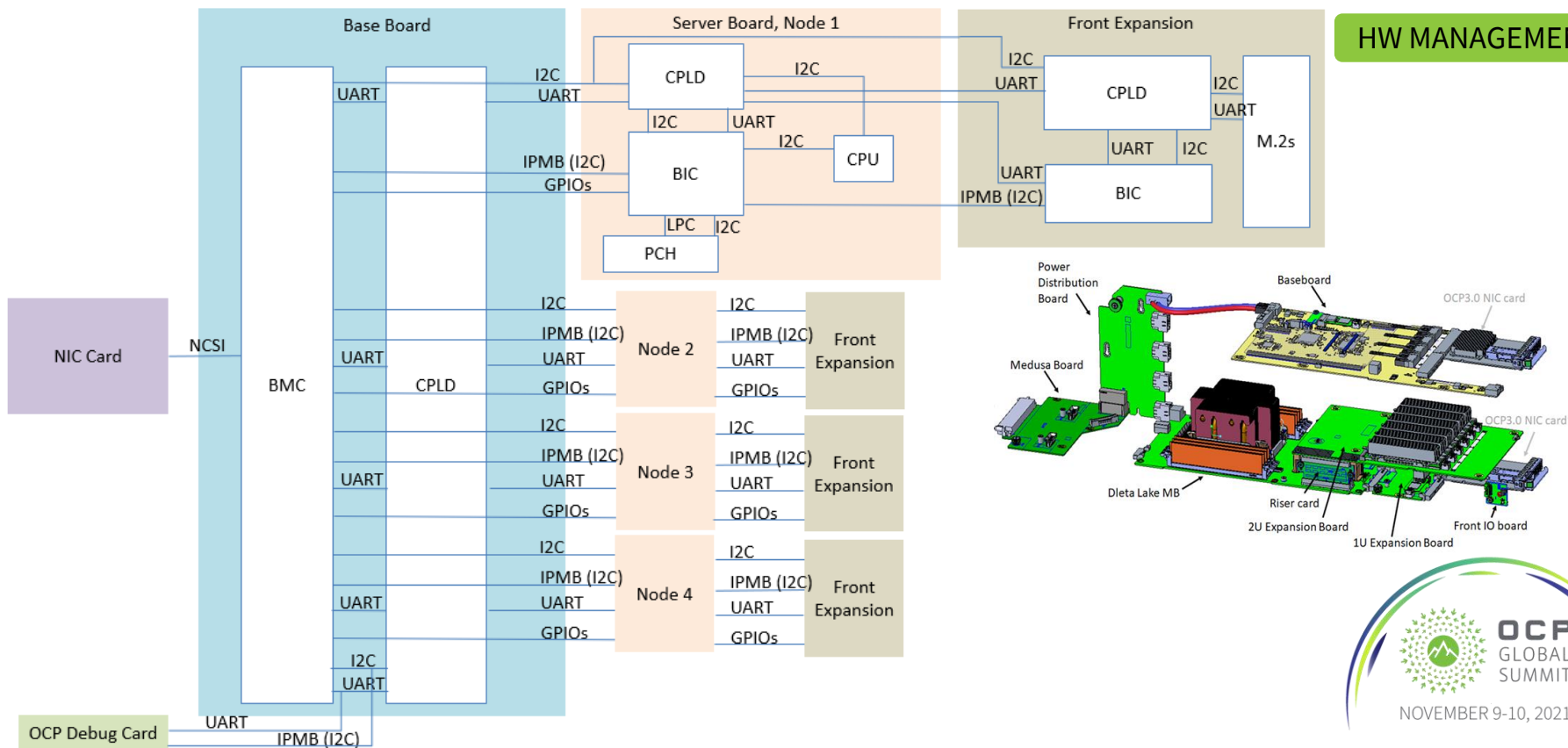
	BSP (U-boot)	Kernel	Common code	Project code
Common	(90%) The drivers and lib supported by u-boot are common, including the VERIFY-BOOT	(85%) The drivers and lib supported by kernel are common	(80%) This layer contains common utilities and common functions	(30%) Only the hierarchical structure is similar
Platform specific	(10%) Different Projects can initialize their hardware and select the required driver through the settings of device tree(dts) and config	(15%) Different Projects can initialize their hardware and select the required driver through the settings of device tree(dts) and config	(20%) According to the needs of different projects, it is necessary to add new tools and develop new functions	(70%) The functions and applications are mostly different

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YV3 Management Topology: config B



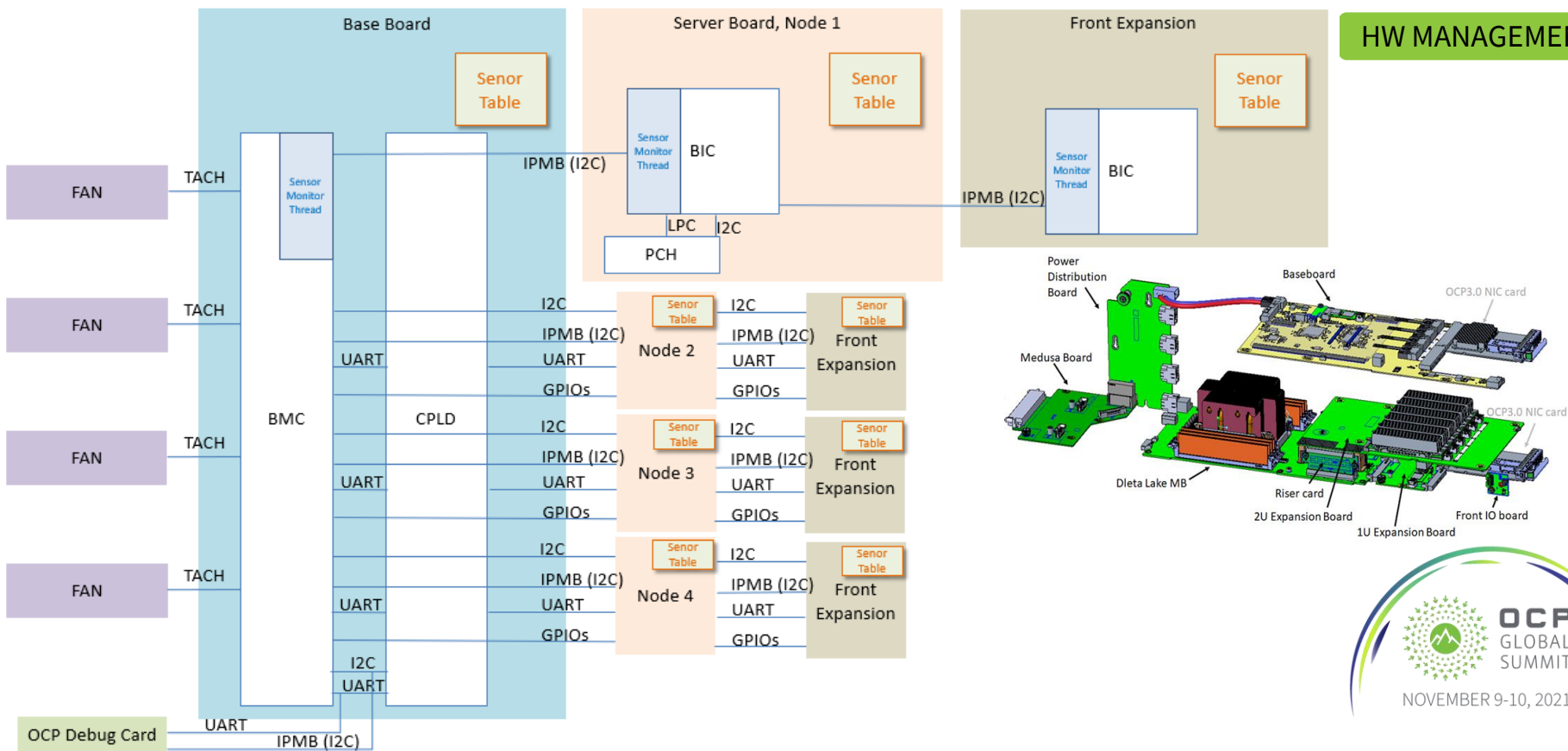
HW MANAGEMENT



YV3 Sensor Monitor Topology



HW MANAGEMENT



YV3 Firmware Update



HW MANAGEMENT

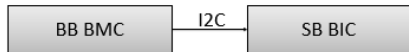
- All FW update start on Baseboard(BB) BMC

- NIC Card FW



- Server Board(SB)

- BIC/BICBL



- VR/CPLD FW



- BIOS



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YV3 Firmware Update



HW MANAGEMENT

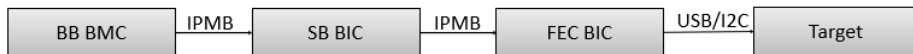
- Front Expansion Card(FEC)
- BIC/BICBL FW



- M.2/ASIC/FPGA FW



- VR/CPLD FW



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YV3 Management Functions



HW MANAGEMENT



- Management Interface
 - NCSI: IPv4 and IPv6
 - UART: SOL support
 - IPMI(I2C): IPMI Stack and OEM command support
 - USB: BIOS and CPLD FW updated
- Event LOG Management
 - Bridge Command Handle
 - Front EPB BIC → Server BIC → BB BMC
 - Front EPB BIC ← Server BIC ← BB BMC
 - HOST/PCH Command Handle
 - Server BIC → BB BMC



- Power Management
 - Sled-Cycle
 - 12V-Cycle/On/Off, DC Cycle/On/Off
 - Power On/Off expansion board and M.2
- Fan Management
 - Manual mode
 - Individual fan table
 - Compliant with OCP's FSC specification

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YV3 Management Functions



HW MANAGEMENT

- Event Management
 - Sensor monitor event
 - System event log
- Firmware Management
 - Display firmware version
 - Update firmware image
- Sensor Management
 - Mainboard sensor monitor
 - Integrate each slot sensor reporting
 - Support analog, discrete and event-only sensor type
- Debug Interface
 - UART : UART → CPLD → M.2
 - JTAG : CPLD → ASIC
 - ASD : IPMI → BIC → CPU
 - OCP LCD Debug Card:
 - POST Code Frame
 - System Info Frame
 - Serial Number
 - Part Number
 - BMC IP
 - FW version
 - ME status etc.
 - Critical SEL Frame
 - Critical Sensor Frame
 - GPIO Status Frame
 - User Setting Frame
 - BMC Error Code

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Call to Action



- OpenBMC is not only compatible with IPMI spec, but also provides more software utilities for users to have a more intuitional and convenient experience. You can find the OpenBMC public code: <https://github.com/facebook/openbmc>

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Thank you!



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